

IN THE CLAIMS

1. (previously presented). A process for the synthesis of nanoparticles of a phase pure ceramic oxides of a mutli-component system comprising two or more metal ions, said process comprising:

(a) preparing a solution containing the metal ions by dissolving their metal salts in an organic solvent or in water;

(b) preparing a precursor by complexing the metal ions with a complexing agent while keeping the ratio of the charges of the complexing agent to the charges of the metal ions as unity wherein said precursor is formed in the solution;

(c) adding nitric acid and ammonia; nitric acid and ammonium hydroxide; or ammonium nitrate to the solution to adjust the nitrate and ammonia content of the solution; and

(d) heating the solution formed in step (c) from room temperature to 250-300°C to produce a foam which subsequently ignites to provide a combustion product comprising the nanoparticles.

2. (currently amended). The process as claimed in claim 1 wherein the ceramic oxide produced contains (a) two cations of the general formula ABO_3 , wherein A is Si, Al, Y or Lanthanides, B is Ba, Sr, Ca, Mg or Fe; or with general formula AlM_2O_5 , where M = Ti, Zr or Hf; or with general formula Al_2NO_4 , where N = Mg, Ca, Sr, Ba, Zn; (b) three cations with the general formula $A(B_{0.5}B'_{0.5})O_6$ or $A_2(BB')O_6$, where B is Ba, Sr, Ca or Mg, B is Zr, Hf, Sb or Sn, B' is Al, Y or Lanthanides, or (c) four cations with general formula $(AA')(BB')O_6$, where A and A' are B, Sr, Ca or Mg, B is Zr, Hf, Sb or Sn, B' is Al, Y or Lanthanides.

3. (previously presented). The process as claimed in claim 1 wherein the complexing agent is selected from the group consisting of citric acid, EDTA and oxalic acid.

4. (previously presented). The process as claimed in claim 1 wherein the metal salts are dissolved in an organic solvent and the nitrate and ammonia content in the solution is adjusted by addition of ammonium nitrate.

5. (previously presented). The process as claimed in claim 1 wherein the metal salts are dissolved in water and the nitrate and ammonia content in the solution is adjusted by the addition of nitric acid and ammonia or ammonium nitrate.

6. (cancelled).

7. (previously presented). The process as claimed in claim 1 wherein the metal salts are selected from the group consisting of alkoxides, nitrates, chlorides, sulphates, oxychlorides or any other salts that are soluble in an organic solvent.

8. (previously presented). The process as claimed in claim 1 wherein the metal salts are water insoluble and are dissolved in suitable acids prior to step (a).

9. (previously presented). The process as claimed in claim 1 wherein the organic solvent is selected from the group comprising of alcohols, trichloroethylene, and any other solvents capable of dissolving the complexing agent and the salts of the metal salts.

10. (previously presented). The process as claimed in claim 9 wherein the alcohol is selected from the group consisting of ethyl alcohol, methyl alcohol and isopropyl alcohol.

11. (cancelled).

12. (previously presented). The process as claimed in claim 11 wherein the heating is done on a sand bath or hot plate.

13. (previously presented). The process as claimed in claim 8 wherein the metal salts are oxides or carbonate salts.